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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/978,429	10/15/2001	Michael J. Mezeul	5022.7-1	5001

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EXAMINER

NGUYEN, HAO X

ART UNIT PAPER NUMBER

2662

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/978,429

Applicant(s)

MEZEUL ET AL.

Examiner

Hao X. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/15/2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/04/2002
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claim 12 is objected to because of the following informalities: "popping the routing label onto the label information table stack" should be changed to "popping the routing label from the label information table stack". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 10, 22, and 2, 3, 6, 7, 14, 15, 18, 19, 26, 28, 29, and 4, 5, 8, 9, 16, 17, 20, 21, 27, 30, 31 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bannai et al. (US Pat. No. 6,647,428), in view of Ylonen (US Pat. No. 6,795,917 B1).

In regards to claims 1, 10, and 22,

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Referring to Figure 7, Bannai discloses a packet processor or multiple packet processors 64 that can receive a plurality of packets (column 9, lines 52-55; claim 1 - receiving a plurality of packets).

Referring to Figure 5, Bannai discloses a packet header that contains routing information (claims 1, 10, and 22 – a routing label) to route the data to its intended destination in a virtual network (claims 1, 10, and 22 - routing each packet to a destination within a system specified in the routing label).

Referring to Figure 6, Bannai discloses a port ID that is included in the packet header and may represent not only a distinct physical port, but also a distinct slot within a physical port (column 9, lines 8-11; claim 22 – a destination specified by a slot identifier in the routing label).

Bannai discloses a destination address that contains 1 byte lookup keys to refer to devices on the virtual network (column 8, lines 35-37, 56-59; claim 22 – a shelf identifier), and stream IDs for a packet to be routed via the switching card out of one of the tributary interface cards (column 8, lines 8-11; claim 22 – a link identifier and a channel identifier).

It also discloses a destination lookup key that is based on packet classification type. If a packet is a data packet (column 11, lines 1-5; column 12, lines 17-18; claims 1, 10, and 22 - packet type being indicative of a data packet), the switch fabric routes the packet to the packet processor 70 for routing to a destination (Figure 7; column 12, lines 16—17; claims 1, 10, and 22 - routing each packet to a destination within the system).

If a packet is a control packet, Bannai discloses routing control packet to CPU 68 (column 12, lines 21-24; claims 1, 10, and 22 – packet type being indicative of a control packet; claims 1, 10, and 22 – routing each packet to a processor within the system).

Bannai discloses the limitations of claims 1, 10, and 22 but it does not disclose sending a reply packet to a sender when the packet is a control packet.

Referring to Figure 9, Ylonen discloses the role of a reply packet that is to confirm to the sending node 903 (column 7, lines 33-36; claims 1, 10, and 22 - sending a reply packet to a sender) that the probe has been received.

Referring to Figure 7, special contents in the data portion 702 of the packet 701 or special flags in the headers of the packet are used to determine whether a packet is a probe packet or not (column 6, lines 25-39; claims 1, 10, and 22 - specified in the routing label in response to the packet type being indicative of a control packet).

According to Bannai the routing label specifies a shelf identifier, a slot identifier, a link identifier, and a channel identifier. Therefore, a reply packet, as shown by Ylonen would also be specified in the same way (claim 22 – a sender specified by a shelf identifier, a slot identifier, a link identifier and a channel identifier in the routing label).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the packet routing method of Bannai by sending a reply packet to the sender as shown by Ylonen to recognize that a control (probe) packet has been transmitted and received properly (Ylonen; column 7, lines 33-36).

In regards to claims 2, 3, 6, 7, 14, 15, 18, 19, 26, 28, and 29,

Referring to Figure 6, Bannai discloses a port ID that is included in the packet header and may represent not only a distinct physical port, but also a distinct slot within a physical port (column 7, lines 24-34; claims 2, 3, 6, 7, 14, 15, 18, 19, 28, 29 – a slot identifier).

Bannai discloses a destination address that contains 1 byte lookup keys to refer to devices on the virtual network by a shelf controller (column 8, lines 35-37, 56-59; claims 2, 3, 6, 7, 14, 15, 18, 19, 28, 29 – a shelf identifier), and stream IDs for a packet to be routed via the switching card out of one of the tributary interface cards (Figure 5; column 8, lines 8-11; claims 3, 7, 15, 19, 26, 28, 29 – a link identifier and a channel identifier).

In regards to claims 4, 5, 8, 9, 16, 17, 20, 21, 27, 30, and 31,

According to Bannai the routing label specifies a shelf identifier, a slot identifier, a link identifier, and a channel identifier. Therefore, a reply packet, as shown by Ylonen would also be specified in the same way (claims 4, 8, 16, 20 – a sender specified by a shelf identifier and a slot identifier in the routing label) (claims 5, 9, 17, 21, 31 – a sender specified by a shelf identifier, a slot identifier, a link identifier, and a channel identifier in the routing label) (claim 27 - a sender specified by a channel identifier) (claim 30 – a sender specified by a shelf identifier, a slot identifier, and a link identifier in the routing label).

Claims 11 and 23, 12, 13, 24, and 25 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bannai et al. (US Pat. No. 6,647,428), in view of Ylonen (US Pat. No. 6,795,917 B1), further view of Eric C. Rosen et al. (Multiprotocol Label

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Switching Architecture, Network Working Group, Internet Draft, and Expiration Date: January 2001).

In regards to claims 11 and 23,

Bannai et al. and in view of Ylonen disclose the limitations of claims 1, 10, and 22 but it does not disclose a routing label that is pushed onto a label information table stack after receiving a packet.

Rosen discloses the "Next Hop Label Forward Entry" that is used when forwarding a labeled packet (section 3.9, page 12; claims 11 and 23 - after receiving a packet) and it contains the packet's next hop.

The operation would be replacing the label at the top of the label stack with a new specified new label, and then push one or more specified new labels onto the label stack (section 3.10, page 13; claims 11 and 23 - push a routing label onto a label information table stack).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the packet routing method of Bannai (in view of Ylonen) by pushing the routing label onto a label information table stack after receiving a packet since a new label on the top of the stack would provide new information for the routing to the next hop (Rosen; section 3.9, page 12; section 3.10, page 13).

In regards to claims 12, 13, 24, and 25,

Bannai et al. and in view of Ylonen disclose the limitations of claims 1 and 10 but it does not disclose a routing label that is popped from a label information table stack after receiving a packet at a destination or a processor within a system.

Rosen discloses that at a given Label Switching Router (LSR) (section 3.10, page 13; claims 12, 13, 24, and 25 – after receiving the packet at the destination or processor within the system) a destination or a processor), a packet's next hop might be that LSR itself.

In this case, LSR would need to pop the top-level label and then “forward” the resulting packet to itself (section 3.10, page 13; claims 12, 13, 24, and 25 - pop a routing label from a label information table stack).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the packet routing method of Bannai (in view of Ylonen) by popping a routing label from a label information table stack after receiving a packet at the LSR (destination or a processor) within a system since the top routing label would be no longer needed when the packet's next hop is the LSR itself (Rosen; section 3.10, page 13).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cidon et al. (US Pat. No. 5,309,433) discloses Methods and Apparatus For Routing Packets in Packet Transmission Networks.

Mabey et al. (US Pat. No. 5,278,831) discloses Information Transmission System.

Patterson et al. (US Pat. No. 5,796,715) discloses Non-Blocking Dynamic Fast Packet Switch for Satellite Communication System.

Quinquis et al. (US Pat. No. 5,638,377) discloses Method of Forwarding Data Packets in a Multi-Site Network, A Corresponding Communications Network, and A Corresponding Interface Module.

Chevalier et al. (US Pat. No. 6,246,669 B1) discloses Method and System for Optimizing Connection Set-up Operations in A High Speed Digital Network.

Garcia-Luna-Aceves et al. (US Pat. No. 6,683,865 B1) discloses System for Routing and Switching in Computer Networks.

Masetti et al. (US Pat. No. 5,438,566) discloses Photonic Switching Network with Broadcast Facility.

Civanlar et al. (US Pat. No. 5,996,021) discloses Internet Protocol, Relay Network for Directly Routing Datagram from Ingress Router to Egress Router.

Eilenberger et al. (US Pat. No. 5,210,743) discloses Switching Element with Multiple Operating Modes and Switching Network Incorporating A Plurality of Such Switching Elements, in particular for Switching Asynchronous Time-Division Multiplex Packets.

Bertin et al. (US Pat. No. 5,600,638) discloses Method and System for Improving The Processing Time of The Path Selection in A High Speed Packet Switching Network.

Bell et al. (US Pat. No. 5,724,347) discloses Integrated Network Switching Having Universal Shelf Architecture with Flexible Shelf Mapping.

Perkins et al. (US Pat. No. 5,442,633) discloses Shortcut Network Layer Routing for Mobile Hosts.

Isfeld et al. (US Pat. No. 5,828,835) discloses High Throughput Message Passing Process Using Latency And Reliability Classes.

Chidambaran et al. (US Pat. No. 6,894,969 B1) discloses Apparatus And Method For Redundancy Of Processing Modules Interfaced To A Switching Core.

Adams et al. (US Pat. No. 5,168,498) discloses Mobile Communications System.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hao X. Nguyen whose telephone number is 571-272-8195. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-8195. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hao X. Nguyen

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Examiner

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A handwritten signature in black ink, appearing to read 'J. Pezzlo', with a stylized, cursive script.

JOHN PEZZLO
PRIMARY EXAMINER